



PAT MCCRORY
Governor

DONALD R. VAN DER VART
Secretary

MICHAEL SCOTT
Director

Via Electronic Mail – jdjordan@cltairport.com

Via First Class Mail

August 19, 2016

Jimmy Jordan
Charlotte-Douglas International Airport
Post Office Box 19066
Charlotte, North Carolina 28219

RE: **Indoor Air Sampling Results & Health Risk Evaluation**
Trans Technology (Lundy Financial Systems)
5535 Wilkinson Boulevard
Charlotte, Mecklenburg County, North Carolina
NONCD0000088

Dear Mr. Jordan:

On March 5, 2016, Hart & Hickman, PC (Hart & Hickman) collected twenty (20) indoor air samples at the jet engine repair and maintenance facility at the above referenced Site. In addition, one outdoor air sample (BAS-1) was collected to evaluate background concentrations during the sampling event. The air samples were submitted for laboratory analyses including select Volatile Organic Compounds (VOCs). Analytical results as reported in the June 28, 2016 Indoor Air and Supplemental Assessment by Hart & Hickman (IA & Supplemental Assessment) have been summarized in the attached Table 1 for your review.

Laboratory analyses of indoor air samples reported concentrations of carbon tetrachloride, chloroform, chloromethane, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, methylene chloride, tetrachloroethene, and trichloroethene. The concentrations of trichloroethene reported in indoor air samples IAS-4, IAS-6, IAS-8, IAS-17, IAS-18, and IAS-19 and the concentrations of tetrachloroethene in indoor air samples IAS-2, IAS-3, IAS-4, IAS-5, IAS-6, IAS-8, IAS-9, IAS-10, IAS-11, IAS-12, IAS-13, IAS-14, IAS-15, IAS-16, IAS-17, IAS-18, and IAS-19 exceed the Division of Waste Management's (Division's) Residential Vapor Intrusion Screening Concentration (i.e. unrestricted use). In addition, the concentration of trichloroethene reported in indoor air sample IAS-8 and the concentrations of tetrachloroethene in indoor air samples IAS-12, IAS-13, and IAS-14 exceed the Division's Non-Residential (i.e. commercial/industrial use) Vapor Intrusion Screening Level.

The data summarized above were used to conduct a Health Risk Evaluation (HRE) by Hanna Assefa of the Division. Enclosed is a copy for your review. In addition, complete laboratory reports from the sampling event may be reviewed by accessing the Division's electronic records

at the following web portal: deq.nc.gov/about/divisions/waste-management/waste-management-rules-data/e-documents.

The IA & Supplemental Assessment reported non-residential use of the above referenced facility and the HRE concluded, based on the aforementioned indoor air data, that the potential adverse health risk calculated for indoor air VOCs is below United States Environmental Protection Agency (EPA) and North Carolina Department of Environmental Quality (DEQ) maximum health risks for cancer and non-cancer effects for non-residential exposure for the nineteen indoor air samples submitted for review. Periodic sampling of indoor air in the facility may be appropriate to confirm that indoor air VOCs remain at or below reported levels. Because the potential adverse health risk calculated for residential (unrestricted) exposure exceeds the USEPA's and DEQ's maximum health risk limits in at least three indoor air samples, **you must notify the Division immediately if there are any changes or proposed changes in the utilization of the property, in the nature and frequency of the occupant population at the property, and/or to property ownership.**

We appreciate your participation in the investigation and assessment of this Site. Further work may be necessary to rule out immediate exposure risks at adjacent properties. If you have questions or need more information, please contact me at (704) 663-1699.

Sincerely,



George D. Adams, Engineer
Division of Waste Management, NCDEQ

Enclosures

cc: Matt Bramblett
Hart & Hickman – CLT
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Table 1. Health Risk Evaluation - Data Summary Table

Constituent	Air Sample Identification												
	IAS-1 (µg/m ³)	IAS-2 (µg/m ³)	IAS-3 (µg/m ³)	IAS-4 (µg/m ³)	IAS-5 (µg/m ³)	IAS-6 (µg/m ³)	IAS-7 (µg/m ³)	IAS-8 (µg/m ³)	IAS-9 (µg/m ³)	IAS-9 DUP-1 (µg/m ³)	IAS-10 (µg/m ³)	IAS-11 (µg/m ³)	IAS-12 (µg/m ³)
Carbon Tetrachloride	0.64	0.57	0.46	0.52	0.55	0.60	0.53	0.68	0.59	0.60	0.57	0.53	0.51
Chloroform	0.13 J	0.17	0.17	0.19	0.19	0.23	0.11 J	0.30	0.14 J	0.19	0.11 J	0.096 J	0.12
Chloromethane	1.6	1.8	1.6	2.7	2.1	2.1	1.5	1.8	1.5	1.8	1.6	2.1	2.0
1,1-Dichloroethane	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	0.071 J	0.071 J	0.062 J	0.080 J	0.077 J	0.082 J	0.054 J	0.082 J	0.080 J	0.099 J	0.091 J	0.074 J	0.065 J
1,1-Dichloroethene	0.058 J	0.32	0.35	0.55	0.43	1.1	<0.14	1.2	0.22	0.26	0.13 J	0.036 J	0.15
cis-1,2-Dichloroethene	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.12 J	0.058 J	0.078 J	<0.14	<0.14	0.058 J
trans-1,2-Dichloroethene	<0.14	0.047 J	0.064 J	<0.14	0.039 J	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene Chloride	0.99 J	1.7	1.4	1.9	1.8	2.1	0.70 J	2.8	0.80 J	0.89 J	0.92 J	0.86 J	0.75 J
Tetrachloroethene	1.4	12	19	18	12	22	3.7	22	34	35	34	14	65
Trichloroethene	0.064 J	0.34	0.35	0.48	0.33	1.0	0.098 J	1.9	0.40	0.40	0.28	0.11 J	0.31
Vinyl Chloride	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090
Laboratory Number	16C0406-01	16C0406-02	16C0406-03	16C0406-04	16C0406-05	16C0406-06	16C0406-07	16C0406-08	16C0406-09	16C0406-10	16C0406-11	16C0406-12	16C0406-13
Collection Date	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016
Sample Location	Admin. Office Area	Storage Room (north-central)	Storage Room (north-central)	Locker Room (central)	Storage Room (southwest)	Storage Room (south-central)	Electrical Equipment Room	Welding Room	Machine Shop	Machine Shop	Storage Room (northeastern)	Storage Room (northeastern)	Storage Room (northeastern)

J = Estimated Concentration

µg/m³ = micrograms / cubic meter

Table 1. Health Risk Evaluation - Data Summary Table (continued)

Constituent	Air Sample Identification								
	IAS-13 ($\mu\text{g}/\text{m}^3$)	IAS-14 ($\mu\text{g}/\text{m}^3$)	IAS-15 ($\mu\text{g}/\text{m}^3$)	IAS-16 ($\mu\text{g}/\text{m}^3$)	IAS-17 ($\mu\text{g}/\text{m}^3$)	IAS-18 ($\mu\text{g}/\text{m}^3$)	IAS-19 ($\mu\text{g}/\text{m}^3$)	BAS-1 ($\mu\text{g}/\text{m}^3$)	Trip Blank ($\mu\text{g}/\text{m}^3$)
Carbon Tetrachloride	0.54	0.55	0.47	0.52	0.39	0.60	0.62	0.20 J	<0.22
Chloroform	0.14 J	0.14 J	0.12 J	0.12 J	0.45	0.43	0.42	<0.17	<0.17
Chloromethane	1.5	1.5	1.7	1.5	1.5	1.7	1.4	0.59	<0.14
1,1-Dichloroethane	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	0.074 J	0.071 J	0.074 J	0.068 J	0.074 J	0.077 J	0.074 J	<0.14	<0.14
1,1-Dichloroethene	0.19	0.19	0.19	0.15	0.84	0.84	0.83	<0.14	<0.14
cis-1,2-Dichloroethene	0.056 J	0.064 J	0.064 J	0.056 J	<0.14	0.053 J	0.061 J	<0.14	<0.14
trans-1,2-Dichloroethene	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene Chloride	1.5	0.80 J	1.0 J	0.92 J	3.3	3.2	2.9	0.31 J	<1.2
Tetrachloroethene	94	39	32	32	21	21	21	<0.24	<0.24
Trichloroethene	0.37	0.36	0.27	0.32	1.0	1.00	1.00	<0.19	<0.19
Vinyl Chloride	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090
Laboratory Number	16C0406-14	16C0406-15	16C0406-16	16C0406-17	16C0406-18	16C0406-19	16C0406-20	16C0406-21	16C0406-22
Collection Date	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016
Sample Location	Storage Room (east-central)	Storage Room (east-central)	Vacant Office (east-central)	Storage Room (east-central)	Engine Shop Office Space	Engine Shop	Engine Shop	Outdoor Background Sample	

J = Estimated Concentration

$\mu\text{g}/\text{m}^3$ = micrograms / cubic meter



Waste Management
ENVIRONMENTAL QUALITY

PAT MCCRORY
Governor

DONALD R. VAN DER VART
Secretary

MICHAEL SCOTT
Director

August 2, 2016

MEMORANDUM

TO: George Adams, Environmental Engineer
Inactive Hazardous Sites Branch
Superfund Section

FROM: Hanna Assefa, Industrial Hygiene Consultant
Inactive Hazardous Sites Branch
Superfund Section

RE: Health Risk Evaluation
Trans Technology
5535 Wilkinson Blvd.
Charlotte, Mecklenburg County
NONCD0000088

Nineteen indoor air samples and an exterior background air sample were collected from the subject property on March 5, 2016 for the purposes of evaluating the potential of vapor intrusion from the subsurface. Contaminant concentrations in the indoor air were evaluated for risk of adverse health effects for residential and non-residential use.

The United States Environmental Protection Agency (USEPA) and the North Carolina Department of Environmental Quality (DEQ) set a maximum of 1 in 10,000 cumulative excess cancer risk, and a hazard index of 1 for non- cancer health effects for the collective total of contaminants present. **The potential adverse health risk calculated for the contaminant concentrations in the indoor air are below the specified USEPA and DEQ maximum health risk limits for both cancer and non-cancer effects for non- residential (industrial/commercial) exposure for all 19 samples. The potential adverse health risk calculated for residential exposure exceeds the USEPA and DEQ limits for some samples.** The summary table below shows the contaminants that were detected in the indoor air.

Table 1. Health Risk Evaluation Request - Data Summary Table

Constituent	Air Sample Identification												
	IAS-1 ($\mu\text{g}/\text{m}^3$)	IAS-2 ($\mu\text{g}/\text{m}^3$)	IAS-3 ($\mu\text{g}/\text{m}^3$)	IAS-4 ($\mu\text{g}/\text{m}^3$)	IAS-5 ($\mu\text{g}/\text{m}^3$)	IAS-6 ($\mu\text{g}/\text{m}^3$)	IAS-7 ($\mu\text{g}/\text{m}^3$)	IAS-8 ($\mu\text{g}/\text{m}^3$)	IAS-9 ($\mu\text{g}/\text{m}^3$)	IAS-9 DUP-1 ($\mu\text{g}/\text{m}^3$)	IAS-10 ($\mu\text{g}/\text{m}^3$)	IAS-11 ($\mu\text{g}/\text{m}^3$)	IAS-12 ($\mu\text{g}/\text{m}^3$)
Carbon Tetrachloride	0.64	0.57	0.46	0.52	0.55	0.60	0.53	0.68	0.59	0.60	0.57	0.53	0.51
Chloroform	0.13 J	0.17	0.17	0.19	0.19	0.23	0.11 J	0.30	0.14 J	0.19	0.11 J	0.096 J	0.12
Chloromethane	1.6	1.8	1.6	2.7	2.1	2.1	1.5	1.8	1.5	1.8	1.6	2.1	2.0
1,1-Dichloroethane	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	0.071 J	0.071 J	0.062 J	0.080 J	0.077 J	0.082 J	0.054 J	0.082 J	0.080 J	0.099 J	0.091 J	0.074 J	0.065 J
1,1-Dichloroethene	0.058 J	0.32	0.35	0.55	0.43	1.1	<0.14	1.2	0.22	0.26	0.13 J	0.036 J	0.15
cis-1,2-Dichloroethene	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.12 J	0.058 J	0.078 J	<0.14	<0.14	0.058 J
trans-1,2-Dichloroethene	<0.14	0.047 J	0.064 J	<0.14	0.039 J	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene Chloride	0.99 J	1.7	1.4	1.9	1.8	2.1	0.70 J	2.8	0.80 J	0.89 J	0.92 J	0.86 J	0.75 J
Tetrachloroethene	1.4	12	19	18	12	22	3.7	22	34	35	34	14	65
Trichloroethene	0.064 J	0.34	0.35	0.48	0.33	1.0	0.098 J	1.9	0.40	0.40	0.28	0.11 J	0.31
Vinyl Chloride	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090
Laboratory Number	16C0406-01	16C0406-02	16C0406-03	16C0406-04	16C0406-05	16C0406-06	16C0406-07	16C0406-08	16C0406-09	16C0406-10	16C0406-11	16C0406-12	16C0406-13
Collection Date	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016
Sample Location	Admin. Office Area	Storage Room (north-central)	Storage Room(north-central)	Locker Room (central)	Storage Room (southwest)	Storage Room (south-central)	Electrical Equipment Room	Welding Room	Machine Shop	Machine Shop	Storage Room (northeastern)	Storage Room (northeastern)	Storage Room (northeastern)

J = Estimated Concentration

$\mu\text{g}/\text{m}^3$ = micrograms / cubic meter

Shaded box indicate cumulative residential risk limits have been exceeded by sample

Table 1. Health Risk Evaluation Request - Data Summary Table (continued)

Constituent	Air Sample Identification								
	IAS-13 ($\mu\text{g}/\text{m}^3$)	IAS-14 ($\mu\text{g}/\text{m}^3$)	IAS-15 ($\mu\text{g}/\text{m}^3$)	IAS-16 ($\mu\text{g}/\text{m}^3$)	IAS-17 ($\mu\text{g}/\text{m}^3$)	IAS-18 ($\mu\text{g}/\text{m}^3$)	IAS-19 ($\mu\text{g}/\text{m}^3$)	BAS-1 ($\mu\text{g}/\text{m}^3$)	Trip Blank ($\mu\text{g}/\text{m}^3$)
Carbon Tetrachloride	0.54	0.55	0.47	0.52	0.39	0.60	0.62	0.20 J	<0.22
Chloroform	0.14 J	0.14 J	0.12 J	0.12 J	0.45	0.43	0.42	<0.17	<0.17
Chloromethane	1.5	1.5	1.7	1.5	1.5	1.7	1.4	0.59	<0.14
1,1-Dichloroethane	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	0.074 J	0.071 J	0.074 J	0.068 J	0.074 J	0.077 J	0.074 J	<0.14	<0.14
1,1-Dichloroethene	0.19	0.19	0.19	0.15	0.84	0.84	0.83	<0.14	<0.14
cis-1,2-Dichloroethene	0.056 J	0.064 J	0.064 J	0.056 J	<0.14	0.053 J	0.061 J	<0.14	<0.14
trans-1,2-Dichloroethene	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene Chloride	1.5	0.80 J	1.0 J	0.92 J	3.3	3.2	2.9	0.31 J	<1.2
Tetrachloroethene	94	39	32	32	21	21	21	<0.24	<0.24
Trichloroethene	0.37	0.36	0.27	0.32	1.0	1.00	1.00	<0.19	<0.19
Vinyl Chloride	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090
Laboratory Number	16C0406-14	16C0406-15	16C0406-16	16C0406-17	16C0406-18	16C0406-19	16C0406-20	16C0406-21	16C0406-22
Collection Date	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016	3/5/2016
Sample Location	Storage Room (east-central)	Storage Room (east-central)	Vacant Office (east-central)	Storage Room (east-central)	Engine Shop Office Space	Engine Shop	Engine Shop	Outdoor Background Sample	

J = Estimated Concentration

$\mu\text{g}/\text{m}^3$ = micrograms / cubic meter

Shaded box indicate cumulative residential risk limits have been exceeded by sample.